Journal of Aerospace Engineering

Guest Editors:
Tuo Han (Beihang University)
Qinglei Hu (Beihang University)
Ming Xin (University of Missouri)

Call for Papers

Special Collection on Constrained Guidance and Control in Aerospace Applications: From Analytical to Learning

Aims & Scope

Guidance and control system plays a key role in generating desired flight trajectories for various missions in the aerospace community. With the increasing task requirements and growing complexity in all aerospace vehicles in recent years, the constrained guidance and control methodologies have been serving as an evolutionary step in achieving sophisticated and safe flight mission operations. Unlike the traditional guidance and control that only considers the zero-miss distance and tracking control stability, constrained guidance and control are required to meet a wide range of practical flight limits, including constrained approach time, approach angle, field-of-view, speed, dynamic pressure, fly-zone, and maneuverability for guidance, and constrained orientation, actuation, rotation rate, tracking accuracy, dynamic response, and other states and inputs for control, respectively. As a result, new guidance and control technologies accounting for these constraints have provided a breakthrough to support the need for guaranteed flight safety, improved flight performance, and enhanced mission effectiveness. Although the aerospace community has witnessed its rapid growth covering from inertial model-based analytical to model-free data-driven learning aspects, the challenges and gaps in this field still exist and are continuously being investigated by the aerospace industrial and academic communities.

To highlight the most recent advances and provide a wide range of the state-of-the-art trends in constrained guidance and control designs and implementations, the ASCE Journal of Aerospace Engineering aims to publish a Special Collection to share the latest results in theoretical and experimental investigations ranging from analytical to learning methods for constrained guidance and control in aerospace applications. Any original guidance and/or control methods considering constraints in the flight of UAVs, aircraft, spacecraft, launch vehicles, and so on, are all welcome for this issue. The collection aims to create a forum for the discussion of civilian aviation and aerospace topics, papers focusing on a military application are outside of this scope. The technical areas include but are not limited to the newest constrained guidance and control advances in theory,

continued on reverse

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algorithms, and techniques from various standpoints such as the state and input shaping, analytical derivation, geometric computation, biased proportional-navigation, numerical solutions, robust control, adaptive control, mode predictive control, sensor-based control, optimal control, data-driven design, differential games, convex optimization, artificial neural networks, deep learning, reinforcement learning, as well as comparative analysis and experimental demonstration of advanced guidance and control techniques considering constraints.

Submission Guidelines:

Submissions will be accepted on a rolling basis. Authors should follow the guidelines for ASCE journal submission and submit manuscripts electronically through the journal's Editorial Manager website: https://www.editorialmanager.com/jrnaseng

Authors should prepare their manuscripts according to guidelines found in "Publishing in ASCE Journals: A Guide for Authors" (https://ascelibrary.org/doi/book/10.1061/9780784479018).

Timeline for the Offical Call for Papers

- Submission deadline: September 30, 2023
- First review deadline: October 30, 2023
- Revision deadline: December 20, 2023
- Second review deadline: January 20, 2024
- Final decision deadline: January 30, 2024

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